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| 09/900,773      | 07/06/2001  | Steven Michael Bellovin | 12177/60501         | 7692             |

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New York, NY 10004

EXAMINER

PEREZ, ANGELICA

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2684

10

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/900,773

Applicant(s)

BELLOVIN, STEVEN MICHAEL

Examiner

Angelica M. Perez

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_. 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Specification***

Changes to the specification had been considered.

### ***Response to Arguments***

1. Applicant's arguments filed 4/05/2004 have been fully considered but they are not persuasive.

2. In the remarks, the applicant argued in substance:

(A) As described in page 9 of the amendment "Prediction points are described in the present specification at, for example...prediction points may be known or calculated based on physical phenomena such as a speed of a moving vehicle, topographical conditions, environmental conditions, and the like."

"Kim is silent with regard to prediction..."predicting" is detecting bad frames... for example."

"Reichelt also fails to disclose prediction... There is no teaching of known prediction points that are determined based on physical phenomena... by the independent claims."

In response to argument (A), the examiner disagrees in the applicant's argument because the term "physical phenomena" can be broadly interpreted, for example, the characteristics of the radio environment is a description of "physical phenomena". Similarly, "Predicting" by detecting "bad frames" is addressed below (see rejection to claim 1 below).

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 17, 19, 21 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim (Kim et al., US Patent No.: 6,343,216 B1)

Regarding claim 1, Kim teaches of a method for processing a communication interruption between at least two communication devices (columns 1 and 2, lines 64-67 and 1-6, respectively) comprising the steps of: based on proximity to a known prediction

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point that is determined based on physical phenomena (column 3, lines 48-55; where the characteristics of the radio environment, "physical phenomena", creates a "shadow area" causing loss in the connection), predicting, during an established communication between the communication devices, that a connection to one of the communication devices will be interrupted (columns 3, 4 and 5, lines 48-55, 62-67 and 1-10, respectively; where consecutive "bad frames" caused by reaching a "shadow area" caused by "physical phenomena" predict a call drop); and announcing that the connection to the one communication device will be interrupted (column 5, lines 24-31).

Regarding claim 2, Kim teaches all the limitations according to claim 1. In addition, Kim teaches where at least one of the communication device is selected from a group consisting of a wireless telephone, a cellular telephone, a landline telephone, a personal digital assistant (PDA), a computer and (column 1, lines 16-19 refers to wireless communications and column 6, lines 10-13, refers to a telephone; due to the alternative limitations, the examiner selected "wireless telephone").

Regarding claim 3, Kim teaches all the limitations according to claim 1. Kim also teaches where the communication interruption is based on at least one factor selected from a group consisting of a tunnel blocking the communication, a hill obstructing the communication, an indoor feature obstructing the communication, an outdoor feature obstructing the communication, lack of communication coverage by at least one cell tower, a communication frequency not available, a hand-off between at least two cell towers not available, handoff to a cell with insufficient communication channels, traveling outside the coverage area, an area with a coverage hole, a mobile switching

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center (MSC) error, interference from an RF source and equipment failures (column 3, lines 52-55; due to the alternative limitations, the examiner picked "tunnel blocking the communication").

Regarding claim 4, Kim teaches all the limitations according to claim 1. Kim further teaches where the communication interruption prediction is based on at least one factor selected from a group consisting of the use of historical data, geographical data, enhanced location data, topographical data and Global Positioning System (GPS) (column 3, lines 52-55; due to the alternative limitations, the examiner picked "region of tall buildings" that corresponds to a "geographical data" described in the specification).

Regarding claim 17, Kim teaches all the limitations of claim 1. Kim further teaches of calculating the duration of the interruption prior to the announcement (column 5, lines 4-10; where the "predetermined time" marks the duration of the interruption prior to disconnection).

Regarding claim 19, Kim teaches all the limitations according to claim 1. Kim also teaches where the reason for interruption is selected from a group consisting of the communication device has traveled outside a coverage area, due to an indoor obstruction and due to an outdoor obstruction (e.g., "elevator"; column 3, lines 52-55; due to the alternative limitations, the examiner picked: "indoor obstruction").

Regarding claim 21, Kim teaches all the limitations of the method in claim 1. Further, Kim teaches where the established communication between the communication devices is a call (column 1, lines 16-19).

Regarding claim 25, Kim teaches all the limitations of the method in claim 1. Further, Kim teaches of a telecommunication system for processing a communication interruption between at least two communication devices (columns 1 and 2, lines 64-67 and 1-6, respectively).

***Claim Rejections - 35 USC § 103***

1. Claims 5, 10-16, 18, 20 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Amin (Amin et al., US Patent No.: 5,995,830).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Regarding claim 5, Kim teaches all the limitations according to claim 4.

Kim does not teach where the historical data collected from at least one subscriber using the communication device along a path and analyzing the communication patterns, including interruptions, along the path.

In related art concerning a system an method of processing dropped calls, Amin teaches where the historical data collected from at least one subscriber using the communication device along a path and analyzing the communication patterns, including interruptions, along the path (column 4, lines 24-26 and 33-37; where the statistical analysis provides a historical record of past call drops within certain geographical areas).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kim's method for processing a communication interruption with Amin's collection of historical data in order to be able to more accurately predict call disconnections and save calls from being dropped.

Regarding claims 10 and 18, Kim in view of Amin teaches all the limitations according to claim 1. Amin also teaches where the announcement also contains at least one reason for the communication interruption between the devices (column 2, lines 7-12).

Regarding claim 11, Kim in view of Amin teaches all the limitations according to claim 1. Amin further teaches the step of sending a message to the other communication device indicating the reason that the connection to the one communication device has been interrupted (column 2, lines 8-12).

Regarding claim 12, Kim in view of Amin teaches all the limitations according to claim 1. Amin further teaches of reconnecting to the one communication device; and re-establishing the communication (column 2, lines 53-56).

Regarding claim 13, Kim in view of Amin teaches all the limitations of claim 12. Amin further teaches of sending at least one reconnection indication to the other communication device upon a successful reconnection to the one communication device (column 2, lines 18-23).

Regarding claim 14, Kim in view of Amin teaches all the limitations according to claim 1. In further art Amin teaches of making at least one attempt to re-establish communication between the two communication devices (column 2, lines 13-18).

Regarding claim 15, Kim in view of Amin teaches all the limitations according to claim 1. Furthermore, Amin teaches attempting to reconnect to the one communication device; and if the reconnection fails, connecting the other communication device to another medium (column 2, lines 13-18; e., "voice mail").

Regarding claim 16, Kim and Amin teach all the limitations of claim 15. Amin further teaches where the other medium is selected from a group consisting of voice mail, a memory location, audio, data and video (column 2, lines 24-31; due to the alternative limitations, the examiner selected: "voice mail").

Regarding claim 20, Kim and Amin teach all the limitations of claim 1. Amin further teaches where at least one communication device is a wireless communication device operating in conjunction with a wireless communication network having a coverage area, the method further comprising the step of: connecting the other communication device to voice mail without attempting to reconnect to the wireless communication device (column 2, lines 24-31).

Regarding claim 22, Kim and Amin teach all the limitations according to claim 21. Furthermore, Amin teaches of reconnecting to the one communication device; and re-establishing the telephone call (column 2, lines 16-20).

Regarding claim 23, Kim in view of Amin teaches all the limitations according to claim 21. Furthermore, Amin teaches where at least one attempt is made to re-establish communication between the two communication devices (column 2, lines 14-20).

Regarding claim 24, Kim in view of Amin teaches all the limitations according to claim 21. Furthermore, Amin teaches dialing a telephone number of the one communication device (column 3 lines 36-46).

Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Amin and further in view of Elwin (Elwin, Randy; US Patent No.: 006,317,596 B1).

Regarding claim 6, Kim in view of Amin teaches all the limitations according to claim 4.

Kim in view of Amin does not teach where the geographical data is collected by mapping areas along a path for obstructions that create communication interruptions.

In related art regarding an error detection and reporting system, Elwin teaches where the geographical data is collected by mapping areas along a path for obstructions that create communication interruptions (column 2, lines 3-7; where triangulation is a way of mapping).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kim's and Amin's combination with Elwin's mapping system in order to acquire more precise data to achieve better future predictions that will avoid telephone calls from being dropped.

Regarding claim 7, Kim in view of Amin teaches all the limitations according to claim 4. Elwin further teaches where the enhanced location data is collected by observing communication flow patterns and analyzing them for any communication interruptions (column 2, lines 7-11).

Regarding claim 8, Kim in view of Amin teaches all the limitations according to claim 4. Elwin further teaches where the topographical data is collected by mapping areas along a path for terrain that creates communication interruptions (column 2, lines 3-7; where triangulation is a way of mapping topographical data).

Regarding claim 9, Kim in view of Amin teaches all the limitations according to claim 4. Elwin further teaches where Global Positioning System (GPS) is used to observe the communication patterns and communication obstructions features and combines both to display communication interruption (column 2, lines 11-15).

***Conclusion***

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US Patent No.: 6,317,596; teaches about monitoring and saving call state information leading to a link failure in a non-volatile memory.

US Patent No.: 6,381,455; teaches about warning from an impending call drop in a wireless system.

US Patent No.: 6,343,216; deals with reconnection of a dropped call in a mobile communication system.

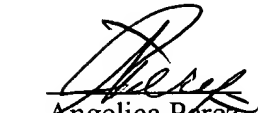
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angelica Perez whose telephone number is 703-305-8724. The examiner can normally be reached on 7:15 a.m. - 3:55 p.m., Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 703-308-7745. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600's customer service number is 703-306-0377.

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Angelica Perez  
(Examiner)



**NAY MAUNG**  
**SUPERVISORY PATENT EXAMINER**

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Nay A. Maung  
(SPE)

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May 14, 2004